

SIXPENCE

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# AMATEUR RADIO

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## VACUUM TUBE VOLTMETERS

### Part 2

... By Alec. H. Clyne. V K3VX ...

(a) BALANCING CIRCUITS...When a triode or other multielement tube is used in a VTVM circuit as in the case of the Grid and Plate Rectifier Types, there will always be a residual plate current, usually of the order of 0.2 M/a. This causes an initial reading or "false zero" on the indicating Meter and apart from being an inconvenience it restricts the scale range."

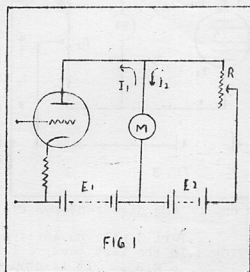
Therefore it is desirable to have some means of removing or balancing out this residual current. This may be best achieved by using a balancing circuit of the kind shown in Fig. 1.

In this arrangement the residual current  $I_1$  is balanced through the meter M by the current  $I_2$  flowing through the auxiliary or balancing battery and the variable resistor R.

This method however introduces complications in the shape of the auxiliary battery, but fortunately it is possible to obtain the same result by utilising the voltage drop across a resistor in the plate circuit as in Fig 2.

This gives the same effect due to the fact that the tap point on  $R_L$  is positive with respect to the meter end of  $R_L$ , and so the current  $I_2$  flows through the resistor R and the meter in opposition to the residual current  $I_1$ .

Both of these methods of balancing are simple and effective but it is necessary to adjust the balancing current from time to time in order to compensate for varying supply voltages and the



effects of tube deterioration. Such disadvantage may be obviated by the use of a balancing tube which in its most convenient form could be a twin triode, one triode being the voltmeter rectifier or the DC Amplifier and the other the balancing tube. This method is shown in Fig 3.

In this case T1 is the meter triode and T2 the balancing triode.

When the instrument is at rest the cathode, grid and plate potentials are identical in both triodes and therefore each draws the same residual current. Resistors R are identical and R1 is assumed tapped at its mid-point and therefore E1 and E2 are the same. Thus there is no voltage across the meter and consequently no current through it and it reads zero.

When a voltage is applied to the instrument terminals, I1 changes, I2 remains constant and E1 and E2 are therefore no longer equal and a reading results on the meter.

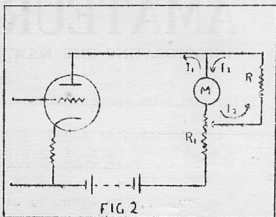


FIG 2

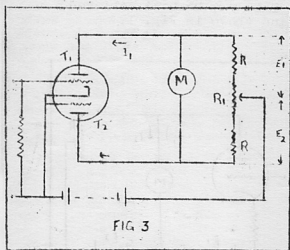


FIG 3

moving one of the disadvantages of this type of Vacuum Tube Voltmeter.

This method has the advantage that once adjusted it will retain its adjustment over long periods, since any change in supply voltage or tube characteristics will affect equally both units of the twin triode. R1 is made adjustable so that initial discrepancies in tubes and resistors may be compensated for.

An important application of balancing circuits is frequently found in connection with grid rectifier voltmeters wherein the balancing current may be so arranged that the meter terminals can be reversed, the instrument then becomes forward reading, thus re-

..Part 3 will be continued next month.

CORRECTION...In the last paragraph on page 2 of November issue, "E x R". It is obvious that this should be E divided by R.

### AMPLITUDE MODULATION UP TO DATE

Because frequency modulation is very much in the limelight these days it must not be thought that technical interest in amplitude modulation is exhausted. In fact, many interesting developments in amplitude modulation systems of high efficiency have taken place recently and some account of these will no doubt be of interest to readers.

The first system is termed cathode modulation and was becoming popular in amateur circles before the war. The popularity was no doubt due to the fact that it combines the advantages of both plate and grid modulation.

In the normal grid and suppressor grid types of modulation the effect is roughly that the modulated stage runs at a lower efficiency when unmodulated than is normal class C stage, and operates at a greater efficiency on the modulation peaks, this being obtained in practice by reducing the radio frequency excitation and increasing the grid bias. Compared with anode modulation, where the RF excitation may be adjusted for slight over drive and plate efficiency may be as high as 75%, the grid modulated stage is not likely to exceed an efficiency of 40%. However, what is more serious is that owing to the lowered plate efficiency, the actual power dissipated by the valve as heat is increased. When running at the limits of rated heat dissipation, the grid modulated stage is capable of much less actual carrier output than an anode modulated stage. It should be remembered that a grid modulated stage dissipates most heat when unmodulated for then the efficiency is lowest.

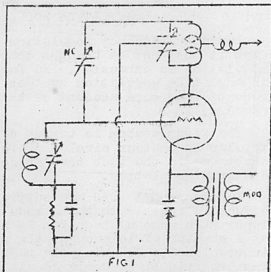
An anode modulated stage, on the other hand, only dissipates the maximum power upon relatively transient modulation peaks. The net result is that the actual carrier power available from the anode modulated stage is of the order of four times the output to be obtained with a grid modulated stage for the same anode heat wastage.

Cathode modulation enables the difficulties inherent in orthodox grid modulation systems to be overcome. As the name implies, the low frequency modulating impulses are injected into the cathode circuit of the class C stage as shown in Fig 1. The cathode circuit may be regarded as common to both the anode and grid circuits. Thus if the cathode is made more positive with respect to the chassis potential, and hence with respect to the grid potential, the effect is an increase in the negative grid bias with the result that the anode current falls. However, as the cathode swings more positive with respect to the chassis, the effective anode-to-cathode potential is reduced, as the anode is held at a fixed positive potential above the chassis. This has the effect of lowering the effective value of the anode-to-cathode voltage, which is equivalent to a reduction in the total high tension potential applied. This results also in a fall in anode current.

When the cathode is swung more negative by the modulating wave



form the conditions are reversed and there is an increase in anode current. Thus the modulating signal when applied to the cathode circuit results in voltages appearing on both the anode and grid which are in phase. As there is a certain amount of anode modulation produced, some power is actually supplied by the modulator to the anode circuit, although this is much smaller than the amount supplied by a normal anode modulator. In the cathode modulation system this is equivalent to about 20% to 30% of the actual anode modulation, the remaining 70% to 80% of the modulation depth is supplied by the grid modulation that is also produced by the cathode applied modulation. Consequently if we swing up to full plate efficiency, at a point that corresponds to 70-80% modulation, our plate efficiency when not modulating is higher than with straight grid modulation and may approach 60% or so.

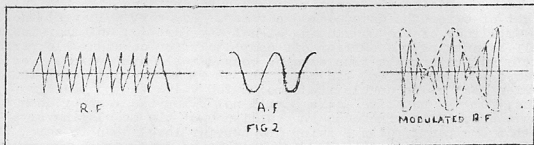


**CIRCUIT ECONOMIES....** The radio-frequency drive power required for the cathode system is about the same as that for a normal class C telegraphy stage, i.e. slightly less than for plate modulation, also, the cathode modulated amplifier has a lower peak-plate current than with anode modulation, which results in longer life of the valve. The peak plate voltages are also reduced, so that the tank tuning condenser need have only two thirds of the spacing required for a comparable plate modulated stage. The actual audio power requirements are about a quarter of those for anode modulation.

Cathode modulation would therefore appear to be an ideal solution of the problem of obtaining grid modulation, having an efficiency not greatly inferior to anode modulation. It is claimed that by the use of cathode modulation, modulation depths of 200% to 300% may be obtained without overloading the transmitter. To see how this is achieved, let us briefly consider the process of modulation. Fig. 2 represents the high-frequency carrier, a sine wave modulation signal and a resulting carrier just modulated to a depth of 100%.

For 100% modulation the carrier wave is reduced to zero on the negative peaks of the modulating wave, and swings up to twice the unmodulated value on the positive peaks. If we assume we are anode modulating a perfect class C amplifier stage, then our modulating signal must swing the anode voltage to zero on the negative peaks,

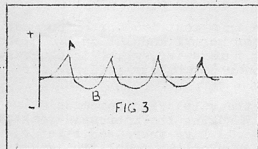
and to double the actual DC voltage on the positive peaks.



In practice a Class C amplifier is not exactly linear, especially when the anode approaches zero volts, and to avoid distortion the modulation depth is usually not carried quite to the 100% limit. To return to the perfect case of Fig 2, it is easy to show that for a modulation depth of 100% the low-frequency power required is equal to half the actual DC power input to the modulated stage.

The actual wave forms of speech, however, are considerably peakier than pure sine waves. This means that for the same voltage swing a speech wave form represents rather less actual power than a sine wave. In other words, although a complex speech waveform and a sine wave may have the same voltage swing, their RMS value will be different. However, from our discussion on modulation it would appear that to fulfil the requirements of 100% modulation we shall require exactly the same voltage swing as when using a pure sine wave. Our speech amplifier must still be capable of handling this voltage swing, although the actual energy in a speech wave form is less. Actually, the power in a speech wave form is only about half that in a sine wave form of the same peak power.

The above reasoning about speech wave forms assumes that even if they are peaky they are symmetrical. It appears that this is not really so, providing the extreme low frequencies are attenuated. The appearance of speech wave forms under these conditions is sketched in Fig 3.



The peaks are all in one direction, and those marked A may have an amplitude which is from two to three times the amplitude of the peaks marked B.

If we apply such a waveform to modulate a transmitter, we can obviously apply it in two ways. If we arrange the polarity so that it is the sharp peaks

which just swing the carrier to zero, we obviously do not swing the carrier upwards on the positive peaks B to anything like the full height of twice the unmodulated carrier. However, we cannot increase the amplitude of the modulating signal any further, as otherwise we shall be cutting the carrier off completely for considerable periods on the negative peaks thus causing considerable distortion. Now if we reverse the polarity of the wave, the sharp peaks will swing the carrier just up to double its unmodulated value on the positive peaks, but the negative peaks B will not swing the carrier down to just zero. If we increase the amplitude of the modulating signal so that the blunt peaks B swing the carrier level down to zero, then in the positive direction we must be able to swing up on the sharp peaks to an amplitude which may be two or three times as great as the normal value of double the carrier level necessary for modulation with symmetrical wave forms. This would correspond to modulation depths of the order of 200% to 300% and corresponding apparent increase in the loudness of the signal in the receiver. The reverse case would correspond to a signal weaker than we should expect for the depth of modulation. Both of these conditions correspond to 100% modulation, however, assuming our class C amplifier is capable of handling the excessive peaks linearly.

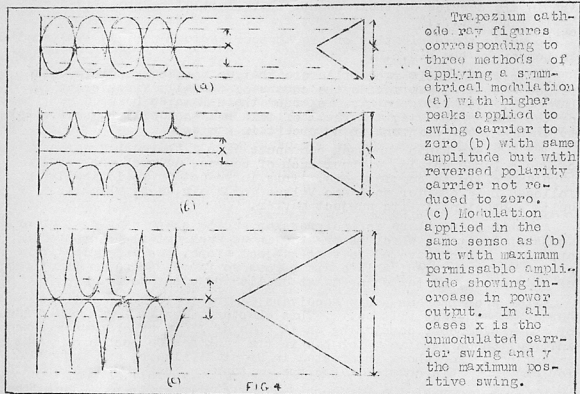
A cathode ray tube connected to show trapezium modulation figure would give a triangle in both cases when we are just swinging the carrier to zero. In the case where we have peaks extending into the 200% to 300% positive region, however, our triangle would be much wider than if we were modulating 100% with a sine wave. In the case where the high peaks are arranged to swing the carrier down to zero, we should again get a triangular figure, only it would not open out in the positive direction to the same extent as with sine wave modulation.

These cases are illustrated in Fig 4. together with the trapezium figures to be expected on a cathode ray tube. The advantage of using the condition where we expect to swing the carrier into 200% modulation region is obvious, for we should be radiating a signal something like four to nine times the power obtained by using the reverse polarity. It is obvious that to use this system successfully considerable care must be taken. A cathode ray tube is essential for checking the operation, and the class C final amplifier requires some attention to ensure that it can handle the extended peaks.

As the modulating voltage swings in a positive direction must be two or three times that required for normal modulation the speech amplifier must be capable of handling this swing, which is equivalent to from four to nine times the power capability required for normal anode modulation.

It must also be remembered that the valves in the class C amplifier stage should be capable of handling the increased peaks, and also the tank tuning condenser should have increased spacing, if necessary in order to avoid flash-over on the modulation peaks.

However, in the case of the transmitter where the input to the final amplifier is limited arbitrarily to a low value, this system should enable very effective use to be made of limited inputs.



A further point of interest is that it is stated that only male voices show this asymmetric effect, while apparently if one inhales while speaking instead of exhaling the polarity of the wave form is reversed. Normally the polarity of the wave form is adjusted by reversing the microphone connections.

It is hoped that the above may be of interest to those interested in speech transmission, and that some of the points raised may have cleared up some of the legends surrounding the modulation question. The extended peak modulation, for example, may possibly explain why some amateur transmitters were able to obtain increases on their aerial ammeters far in excess of that to be expected on normal modulation.

- THAT HE WHO FIGHTS MAY READ -

...  
A page of book reviews conducted for the benefit of  
Hams in the Services, and others similarly situated

"To the Radio Amateurs of Great Britain and the British Empire who in the Service of their Country have kept alive the Spirit of Amateur Radio....."

So reads the dedication of the Amateur Radio Handbook, published in London by the R.S.B.B.

It is with considerable pleasure that we open our monthly book review with a glance inside the covers of a really first class Ham handbook. To those who have regarded the G Hams as being a jump or two behind the W's, a perusal of this handbook will be sufficient to change their opinions in no uncertain manner.

The Amateur Radio Handbook commences with a thorough treatment of Radio Fundamentals, without such of course, no such work would have any claim to completeness. This introduction is logically followed by a chapter on Radio Valves and their uses, which is quite convenient in its subject matter.

At this point there is a digression in the shape of a chapter on Workshop Practice, which is treated in as much detail as one would expect in a book devoted to that subject alone. As an indication of the scope covered, this chapter goes so far as to set out methods of sharpening and tempering twist drills and other tools.

After a chapter on Radio Receivers, there follows one entitled "Crystal Band-Pass Filters." This chapter alone is worth the price of the whole book, consisting as it does of 13 pages of concentrated information on a topic which has in the past decade become of great importance. For those interested in Crystal Filters, and indeed for any Ham, this chapter makes the Amateur Radio Handbook a "must."

The remainder of the Handbook deals with Transmitters, Modulation, Eying, Audio Equipment, and all the other usual subjects. Highlights are chapters on Artificial Aerials, Calculation of Great Circle Distances (and we mean calculation no globes and pieces of string) and Television Technique.

The Handbook winds up with a list of reference books, no less than 97 are listed.

This is an excellent work, the subject matter is clearly presented, with an abundance of diagrams to back it up. The only fault we could find was the complete omission of any reference to linear tuned circuits for UHF receivers, although they are given some prominence in connection with UHF transmitters.

Congratulations are due to the RSGB for producing such a fine handbook under the stresses of wartime conditions.

(The Amateur Radio Handbook, R.S.G.B. London. Our copy from McGills Newsagency, Melbourne...308 pages...Price 8/3).

Review Editor....A. H. Clyne.VK3VX

SLOUCH HATS AND FORAGE CAPS

Well, well, those Christmas 73s are a bit slow in arriving, so apparently the Mails for Second Class Mail matter to the troops are not as good as we thought they were. Oh, well, no doubt they will arrive in good time for the next issue - that is, as I said before, if you used the Air Mail, hi! In any case I want some more notes as the Reserve has been pretty well used up and visitors are very scarce these days in VK2.

By the way, if any of you Hams from "foreign climes" (VK3,4,5,6 etc.) ever land at Mascot Aerodrome on your way from one place to another, so to speak, please remember Eastlakes and 2XC are only a mile away at the most and a bus from near the Aerodrome takes you to the shop door...we are here all day and it being a Ham establishment we never go to bed early...so you of the RAAF, etc., please remember.

To start with...you chaps are not a bit of good with the news. In VK2 papers there was quite a bit about one named McCarthy who serves with an RAAF Beaufighter Squadron. I am told that he is Koith McCarthy of 3FX and 2VM, wellknown on the air with both calls. Does anybody know anything extra about him. If I remember correctly he has at least one decoration.

Congratulations to Alex Slight 2ZA on his promotion to Wing Commander. 2ZA was in the permanent RAAF and was noticeable for the way he made all the Reserve Hams welcome when they were called up to Richmond in those far off days when this War began. I believe 2ZA is somewhere up North.

From VK3RV up at Canberra comes the following..."Yours truly is still plugging along, up to my eyes in work and more in sight. Am trying my hand at some high fidelity gardening. Guess I will have to get the signal tracer to work over the weekend as it looks like my lettuces are suffering from electroslugolosis. Do you think that "AR" would appreciate an article on the "Cure of Parasitic Oscillations in Climbing Beans", I hope to do lots of research into this absorbing subject during the Summer.

VK2ANP Jack Gore has an fb bug in a tiddly box but doesn't get a chance to use it in his new job. He is settling down to a quiet life...just a martyr to the cause.

VK2ACG Allan Morris Rees...Allan is now back at Harman after having served at all the Canberra Naval W/T Stations. He is still pounding brass. Ham radio was never like this...not even a thrill now in having a choice of QRO rigs to key...after four years of it in the Navy.

VK2EO Dave Duff...is at present on long leave, but I don't know whether he went away or not...(How about a trip to VIS, Dave... haven't seen you for years and years, 2XC)

VK5FA Brian Anderson has just returned from 14 days's leave spent with the jf and junior Op in his home state. Don't know how these people get leave, I must find out the recipe. 5FA & 2ANP work together.

Another VK5 reported a little while ago on leave was FL/Lt Ross Harris of VK5FL who after serving North was on leave in VIM.

Sq/Leader Morrie Myers 2VN has, on the other hand left VIM and gone North. My lads asked Morrie how many planes were in his Squadron. Hi!

VK3HT..Sigmaller D. G. Britt of Doncaster is still with the 16th Australian Field Regiment and now has a VK number.

VK3XR Captain Jack Winton is still serving with the 2/II Australian Field Regiment A.I.F. but we have now details of his movements since his return from Overseas.

VK3VC..Sgt Chas. Nelson of Ararat complains that he hasn't met any hams lately although he expected that 3UK would be visiting his station shortly.

VK5ER Sargeant Fred Smith writing from 3 Aust. School of Sigs at Melville W.A. advises he is very busy instructing Radio Theory and always puts in a good word for Ham Radio when the opportunity arises (if only all the Hams had the "spirit" om, 2YC) He receives AR each month and is pleased the gang are still able to turn it out.

VK3LN Sgt Len Moncur RA F and CPL Ron Higginbotham 3NF have been getting their names in the paper. Both have recently been presented with a son (Attaboy!! 2YC)

Oldtimers on the air will be pleased to learn that Bob Dalton is a Group Captain in the RAAF. Bob is an old Flying Corps man of the last war and we understand he is OC of a training school in Victoria. He held the call of VK3UI for many years but was not licensed for a year or so before the war.

VK5LF and VK3TM are together somewhere up North. Both of these are pretty oldtimers, too, getting their licences about 1925. 5LF says his first Yank was W6HM the late Clair Foster. Len of 5LF wants his 73s to be converted to 2MS, 2HM, 2ZN, 2LG, 2CM, 2BK and 2RJ with whom he has many great QSOs "way back."

I believe Bob Chilton 2RC is now CO at one of the Northern VK RAAF Zones, in his particular division of activities. Give me a ring when you next hit VIS, Bob, om.

Newly commissioned in the RAAF are Paul Watson VK3PF of Warracknabeal and Adrien Miller of Canterbury. P/O Adrien (3AH, in case you don't know would appreciate a note from all ham friends. He extends Christmas and New Year greetings to them and given his address Group 599 RAAF Mascot N.S.W. or 2 Logan St., Canterbury. E.7.

Sgt. Frank Walker VK3EV of Camberwell may be found at Block 7, No.1 Coy. No. 1 Sig. Training Btn. Bonogilla Vic. He also tells me I made Ron Streeter a FL/Lt instead of a FL/Sgt...but Adrien that's what he really "should be".

Leaving the VKs we have a note from Vern Dimmick who seems to spend his time travelling about VK. Vern reports that he has run across the following Hams:-

W2LRD Leo Bah; W2FOB Louis Mirani; W2EEN Bill Meritz; W3DOT Frank W. Logan; W4HWF Lt. Gene Hozel; W4CVI Cpt. Henry Eskow; W4DRT Capt. Dumas; W6SZG Major Martin; W2BAF Lt. S. Leber; W8ICG W/O Harry Steiger; W9CHO Lt Luther Pierce; W8FCA Lt. B. Winkle; W4MV Cpt. Sattle; W3GSO Lt. Hartman; W7CRE M/Sgt. Dick Beasley; W9HLO Carl J. Finger; W2KJY Edwin A. Kirchmayer; W2NDJ Al Stamerfield; So apparently, there are plenty of W Ikas knocking about if only one (continued on page 14)

## DIVISIONAL NOTES

### .. Federal Headquarters ..

The newly elected Executive held its first meeting on Thursday 18th November and one of its first acts was to place on record an appreciation of the services rendered by the retiring Members Messrs. Friddle and Gough.

Despite repeated efforts it has not been possible to alter the attitude adopted by the Chief Radio Inspector with reference to a proposed broadcast to the China Amateur Radio League. It seems remarkable that both the R.S.G.B. and the A.R.R.L. could make arrangements without infringing any international regulations. One can only come to the conclusion that as far as Australia is concerned officialdom "just couldn't be worried" thereby handing a very nice slap in the face to a very gallant ally. Incidentally, Chinese Amateurs are still active and are serving as a valuable means of communication between the various provinces and Chungking.

Councillors were astounded to learn - per medium of an overseas visitor that a Network is functioning in South Australia and also - per medium of the National Emergency Services, N.S.W. that Hobart has a similar organisation. It is extremely regretted that some States cannot follow the example of Western Australia in keeping Federal Headquarters informed of the doings in the various States. The Federal Executive have no designs upon the organisation or have they any desire to act in an executive capacity as far as the individual States are concerned, but what they do ask of each State is that they be kept informed of just what is happening. In the case of South Australia, correspondence from Federal Headquarters has been ignored and as the person to whom it was addressed was at one time a Federal President he should realise just how important it is to pass on information.

The Federal Executive of the Wireless Institute of Australia wish all Divisions of the Institute and kindred societies the Compliments of the Season and trust that the day will soon arrive when these wishes may be delivered in a different manner.

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### NEW SOUTH WALES DIVISION

At the November General Meeting members extended a hearty welcome to Ft. Sgt. Fred Stirk VK2ABC who was enjoying a long awaited leave. Unfortunately, although a fone hound in the good old days, Fred did not have a great deal to say. Other visitors were Steve Skinner VK2?/VK3? Steve recently passed the A.O.C.E. and seeing the light decided to move to VK2!

An Honorary Membership Card recently printed for presentation to overseas visitors was favorably commented upon and those



Amateurs eligible for same were duly elected.

Upon the declaration of the poll for the election of the Federal Executive tributes were paid to the sterling work performed by the retiring Federal President Ray Fiddle VK2RA. 2RA through pressure of business was unable to stand for re-election and thus the Institute Federally lost one of its most valued workers since the days of Bill Moore, VK2HZ. In moving that it be placed on record the Institute's appreciation of 2RA's services the Federal Secretary stated that much of the credit - if not all, for the work carried out by the retiring Executive could be given to Ray Fiddle particularly with reference to the Federal Census which did so to let the Australian Experimenter know that the Institute was still functioning. These remarks were supported by the Federal Vice-President who stated that during the whole of the term of office, he was only able to take the chair once. 2RA in his response stated that his job had been rendered comparatively easy by the splendid teamwork existing among Members.

For those members statistically inclined, here are the election figures: -

<u>Vice President</u>			<u>Executives</u>		
H. F. Peterson	VK2HP	39	W. McElrea	VK2UV	43
C. Pryar	VK2NP	11	C. Pryar	VK2FP	33
N. Gough	VK2NG	2	N. Gough	VK2NG	24
W. McElrea	VK2UV	2	E. Hodgkins	VK2EH	14
Informal					

Members were informed that the sum of £16/16/- had been collected to date for the A.C.F. "Adopt a Soldier Scheme." Thirteen pounds has already been forwarded to the A.C.F. and it is hoped to make balance in hand up to £5/4/-. A very generous donation of £2/ 12/- was received from Reg Fagan VK2RJ. Many thanks om.

It was decided that the December General Meeting would take the form of a "Pound Night" Every member being asked to bring some form of refreshment, along with either liquid or solid so that something akin to the festive season may be generated. Don't forget. Thursday 16th December at the T.M.C.A.

The Chairman of Australia New South Wales Division take this opportunity of wishing all Amateurs the Season's Greetings, and let us hope that Xmas Greetings in 1944 will be exchanged by Experimental Stations.

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#### EMERGENCY COMMUNICATION NETWORK.

November saw the completion of the visits by operators to the various District Controls to which they are attached. These visits culminated with an inspection of Metropolitan and State Controls.

At State Control operators were addressed by the Director of National Emergency Services, Mr. R. Hicks, who expressed his appreciation of the work carried out by the Network. The State Operational Controller then gave a description of the workings of this particular Control and all present were astounded by its statewide ramifications. Morning Tea was served by Mesdames Goven and Lusby!

On Thursday 25th November a series of motion pictures, silent, talkie and color were shown operators so that they would have some knowledge of the work performed by the various Essential Service parties who operate under N.E.S.

Whilst visiting the various District Controls Radio Operators were given the opportunity of both receiving and transmitting messages per telephone instructions being given by the VL operators and it is anticipated that some happy if not life long friendships will eventuate!

Sunday December 12th will be a great day for the Network. For the first time since its inception it will take part in the N.E.S. Exercises arranged for that day. We'll tell you all about it in the next issue.

The most important event during the past month has been the installation of the Central Control, VL2JB, at its new location. Members may have noticed a couple of ten metre doublets on the top of one of the highest buildings in Sydney. The installation of the transmitter proved two things. When you have feeders three hundred feet long the RF doesn't like twisted VIR but if it's Polystyrene cable its an entirely different story. It's just the difference between minus R1 and plus R9!

One very pleasing feature of the change was the strong reception of VL2JB by VL2JE. Previously Control had been unable to receive VL2JE quite well, but unfortunately VL2JE couldn't hear control which meant that outward messages from VL2JB had to be relayed. This in turn meant that the message handling capacity would be lowered. Boy! If you could have heard the relief in 2LW's voice when he rang through to say that he could even hear us breathe! He wasn't the only one who was pleased. Let's hope conditions weren't abnormal.

Another astounding piece of reception was that of the signal from VL2JP. VL2JP is about 12-14 miles airline from the present location and they just romped in. I believe this reception astounds the "Brains Trust" at C.S.I.R.

Due to the various moves no Message Handling Exercises were held during November, and it is doubtful whether any will take place during December, what with the N.E.S. Test, Xmas and New Year Holidays. When the Exercises do commence again its going to be a very difficult job to pick the winner and the station that gains the most points will know that its been racing!

.. VICTORIAN DIVISION ..

The efforts of the Victorian Divisional Council in endeavouring to have an Emergency Communication Network recognised by the Authorities received another blow in the form of a letter from the ARP authorities which, to quote the letter in a few words "Although the idea of an emergency Radio network was sound, it was considered that under present conditions the expense of installation was not warranted. The scheme however, would be kept in mind as it could be used in time of National Emergency, such as bush fires."

To follow this letter up, the secretary has forwarded a further communication to the Chief Air Raid Warden pointing out that this gear was already in the possession of the Hams and would not have been of any expense to the authorities.

We deeply regret to announce the death of Mrs. J. C. Hutchings VK3HM. To her husband and to VK3HL and VK3HJ we extend our sincerest sympathy.

The Laboratory Committee are continuing their check of the gear owned by the Victorian Division, and already several pieces of equipment have been tested out. As we have explained in earlier issues of this Magazine the object of this Committee is to endeavour to equip a laboratory with various testing equipment for the use of members who desire to check components and other gear.

Friends of Jim Marsland VK3NYK will be pleased to know that he is progressing favourably after a recent operation in which he lost his appendix. Jim has a souvenir in the form of a nice X-ray photograph....all he wants now is Television...

...oOo...

SLOUCH HATS AND FORAGE CAPS.

could pick them. As I've said before, any W Ham in the Capital Cities is only too welcome at any VK Ham Shack...Get in touch with the Divisional HQ. In VK2 we have WIA notices at most American Centres, but if you don't see those 2YC's phone number is always in these notes, oms. Now, we expect these 73s to roll in from now. The Mag was read in Darwin on Nov. 13th, and we received an answer from Jim Kerley, whom you will find at the Naval Post Office, Darwin. All hams are invited to drop in and see Jim, even on beer issue day, he will be very glad to see them "and, he sells the cheapest stamps in Darwin" Jim wishes to be remembered to Herb Stevens, Ivor Morgan, Jim Marsland (sine appendix, I hear), Vaughan Marshall and the rest of the VK3 gang he used to know.

73's OMs and to all those who write this column, thanks a lot. (VK3 just about wrote this issue...hi). Send or 'phone notes to Divisional Secretary or to Jim Corbin, 73 Maloney St., Mascot, Phone MUIb92 .

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## THE EXPERIMENTAL RADIO SOCIETY OF EGYPT.

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**HAMS ON ACTIVE SERVICE**  
are assured of a welcome.

Write FRANK PETTIT, Catholic Club,  
Mustapha Barracks, Sidi Gaber, Egypt.  
or Phone:

Alexandria 27315 (SU15G)  
or Ramleh 498 (SU1RD)

## CHANGES OF ADDRESS

Members and Amateurs in  
general are reminded that  
the Radio Inspector should  
be advised of any change  
of address.

Also notify your Divisional  
Secretary.

## HAMS ON SERVICE

Other hams are interested in your doings.

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Drop a line occasionally to your  
DIVISIONAL SECRETARY  
or to

J. CORBIN, VK2YC,  
78 Maloney Street,  
EASTLAKES, N.S.W.

## The Radio Society of Great Britain

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A cordial invitation is extended to all

**HAMS ON ACTIVE SERVICE**

to visit the Society at

**NEW RUSKIN HOUSE  
28-30 LITTLE RUSSELL STREET,  
LONDON, W.C.1.**

# THE WIRELESS INSTITUTE OF AUSTRALIA



Divisions of the Wireless Institute of Australia exist in every State of the Commonwealth. The activities of these Divisions are co-ordinated by Federal Headquarters Division, the location of which is determined from time to time by ballot.

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**Official Organ :** "AMATEUR RADIO"—Published by the Victorian Division.

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